Department of Parks and Wildlife

Interim guideline for preliminary surveys of night parrot (*Pezoporus occidentalis*) in Western Australia

Version 1 – May 2017

Background

The night parrot (*Pezoporus occidentalis*) is a small, elusive parrot that is endemic to Australia. Night parrots are highly cryptic in nature, being nocturnal, primarily ground-feeding parrots that inhabit remote arid and semi-arid areas of Australia.

The night parrot is recognised as a threatened species under State and Commonwealth legislation. Due to its threatened status, surveys for the night parrot may be required in areas of suitable habitat within the likely range of the species in WA, including for development impact assessment, land management and research into the species.

The following information is provided to assist in determining when night parrot surveys are required and to outline appropriate methods for survey. Please note that this information is provided as a guide only and this guideline is subject to change as new information about night parrots becomes available. Survey practitioners are strongly encouraged to check the Parks and Wildlife night parrot webpage regularly for the latest version of this guideline.

When and where night parrot surveys may be required

Historical collection records, and more recent observational information on the night parrot from Queensland and WA, provide evidence of the historical distribution, potential current distribution, and likely habitat of the night parrot. This information will identify the areas within WA where night parrot surveys could or should be undertaken. It is advisable to contact traditional owners, particularly in areas subject to native title, who may also have knowledge of the species and its occurrence.

Development proposals and land management activities potentially affecting suitable habitat in areas of WA where night parrots may occur may require survey for the presence of the species. Areas in WA where night parrots and their habitat should be considered in the planning and assessment of proposals prior to approval or implementation are shown in Figure 1.

The broad habitat requirements of night parrots include areas of old-growth spinifex (*Triodia*) for roosting and nesting, together with foraging habitats that are likely to include various native grasses and herbs, and may or may not contain shrubs or low trees. Night parrots have been known to fly up to 40 km or more in a night during foraging expeditions, so foraging habitat is not necessarily within or adjacent to roosting areas.

At the local (site) level, roosting and nesting sites are in clumps of dense vegetation, primarily old and large spinifex clumps (often >50 years unburnt), especially hummocks that are ring-forming. These may be in expanses or isolated patches, but sometimes associated with other vegetation types, such as dense chenopod shrubs. Spinifex hummocks that are collapsed (i.e. less than about 40-50 cm in height) are not likely to provide adequate shelter. Photographs of example roosting sites are shown on the Night Parrot Recovery Team website). Often the vegetation in these habitats will be naturally fragmented and therefore well-protected from fire.

Little is known about foraging sites, but favoured sites are likely to vary across the range of the species, and to vary with season. In Queensland, night parrots have been shown to feed in areas rich in herbs including forbs, grasses and grass-like plants, and similar areas are believed to also be important in WA. *Triodia* is likely to provide a good food resource at least in times of mass flowering and seeding. The succulent *Sclerolaena* has been shown to be a source of food and moisture; other succulent chenopods are also likely to be important. Foraging habitat is likely to be more important if it is adjacent to or within about 10 km of patches of *Triodia* deemed suitable as roosting habitat.

Survey effort should be focussed primarily on likely roosting and nesting sites as the birds can be heard calling as they leave these sites, and will return after they have foraged during the night, whereas foraging sites are likely to be dispersed, seasonally variable, and less well defined. It is not known whether they call at foraging sites.

Survey methods

Within an area identified as potentially supporting the species, any stands of large, old clumps of spinifex (*Triodia*) should be surveyed for the presence of night parrots. This is especially so if the identified area is part of a palaeo-drainage system or contains healthy stands of samphire.

The most effective survey technique for night parrots is passive acoustic surveys. A selection of reference calls is available on the Night Parrot Recovery Team website, and this resource will be expanded over time. Some calls from WA appear slightly different from those in Queensland, but such differences are currently poorly known and not quantified. Autonomous recording units (ARUs) with microphones in good condition should be deployed in prospective roosting or nesting habitat, and supplemented by listening by experienced human observers in the field at night within potential roosting habitat. A survey will need to include at least six nights of recordings that are made under good recording conditions (i.e. little or no wind, rain, or other acoustic disturbances) for each recording device (ARU) at a given position. The number of ARUs required will depend on the area to be surveyed. Note that under reasonable conditions with relatively new microphones, some ARUs may pick up night parrot calls up to a radius of about 300 m. Windy or rainy conditions, or microphones that have deteriorated as a result of lengthy field use, will reduce their effectiveness.

For non-breeding birds, peak calling periods occur in the two hours after sunset and the two hours before sunrise. However, during breeding events, calls can occur any time during the night, and peak calling may occur outside the post-sunset and pre-sunrise periods. Optimum timing for surveys would be in the few months following significant rainfall events, when breeding is more likely to be occurring and therefore detectability of the species is expected to be higher.

Programming ARUs to record throughout the night is therefore required to provide the most effective survey effort. Currently, efficient software recognisers are not available for night parrots and therefore manual scanning of recordings in spectrogram view is the recommended approach to analysis. Suitable software (e.g. Raven Lite) is available freely on the internet.

Call broadcast ('playback') may be appropriate in some circumstances, but it is not recommended when birds are suspected to be breeding, as this may disturb breeding efforts (in such situations, calling is much more frequent anyway, meaning that detection probability is relatively high without the need for call broadcast). Call broadcast is not required in situations where birds have already been heard, unless it is important to confirm an identification. It is best to listen first – if calls are heard, then call broadcast may not be necessary. If spontaneous calls are not heard within a 30 minute listening session, call broadcast could then be used for a fixed amount of time (play several calls, wait five minutes, then repeat) to try to elicit a response, followed by another short listening period. Note that if call broadcast is used near an ARU, the broadcast calls may be recorded on the ARU, thereby producing a false positive record.

If proposing to use call broadcasts, a licence to take (including disturb) fauna for scientific purposes, under regulation 17 of the Wildlife Conservation Regulations 1970, is required to be obtained from Parks and Wildlife. Parks and Wildlife will advise if the use of call broadcast is appropriate in the specific circumstances.

Camera traps have proved not to be effective in surveying roosting or feeding areas, but could be used as a supplementary technique at potential drinking sites, especially during times of high temperatures and high water stress, such as droughts.

Transect foot surveys that seek to flush out birds are not recommended as this has a very low chance of success, and may disturb nesting or roosting birds, degrade their habitat and potentially make them more prone to predation if they are unable to rapidly find new cover.

It is vital to note that at present, no available survey technique can irrefutably demonstrate that night parrots are absent from a site. Habitat assessment is therefore critically important. Where habitat is suitable, even if the species was not confirmed as being present, it might be present at another time of year or in another year. In such cases, impact assessments should indicate the likelihood of occurrence based on the quality of the habitat at the site, focus on the risk of a project to the species on the assumption that it is present, and assess any threatening processes that may occur as a result (e.g. reduction of the extent or quality of habitat, increase in numbers of feral predators, increase (or decrease) in grazing pressure, or changed fire regime).

Further information

Night Parrot Recovery Team webpage (www.nightparrot.com.au). Includes downloadable reference calls, guidance on effective, non-intrusive survey techniques and sighting reporting protocols.

EPBC SPRAT profile – Night Parrot (http://www.environment.gov.au/cgi-bin/sprat/public/publicspecies.pl?taxon_id=59350)

Parks and Wildlife WA night parrot webpage (www.dpaw.wa.gov.au/plants-and-animals/threatened-species-and-communities/threatened-animals/487-night-parrot). Includes the most up to date night parrot survey guidelines.

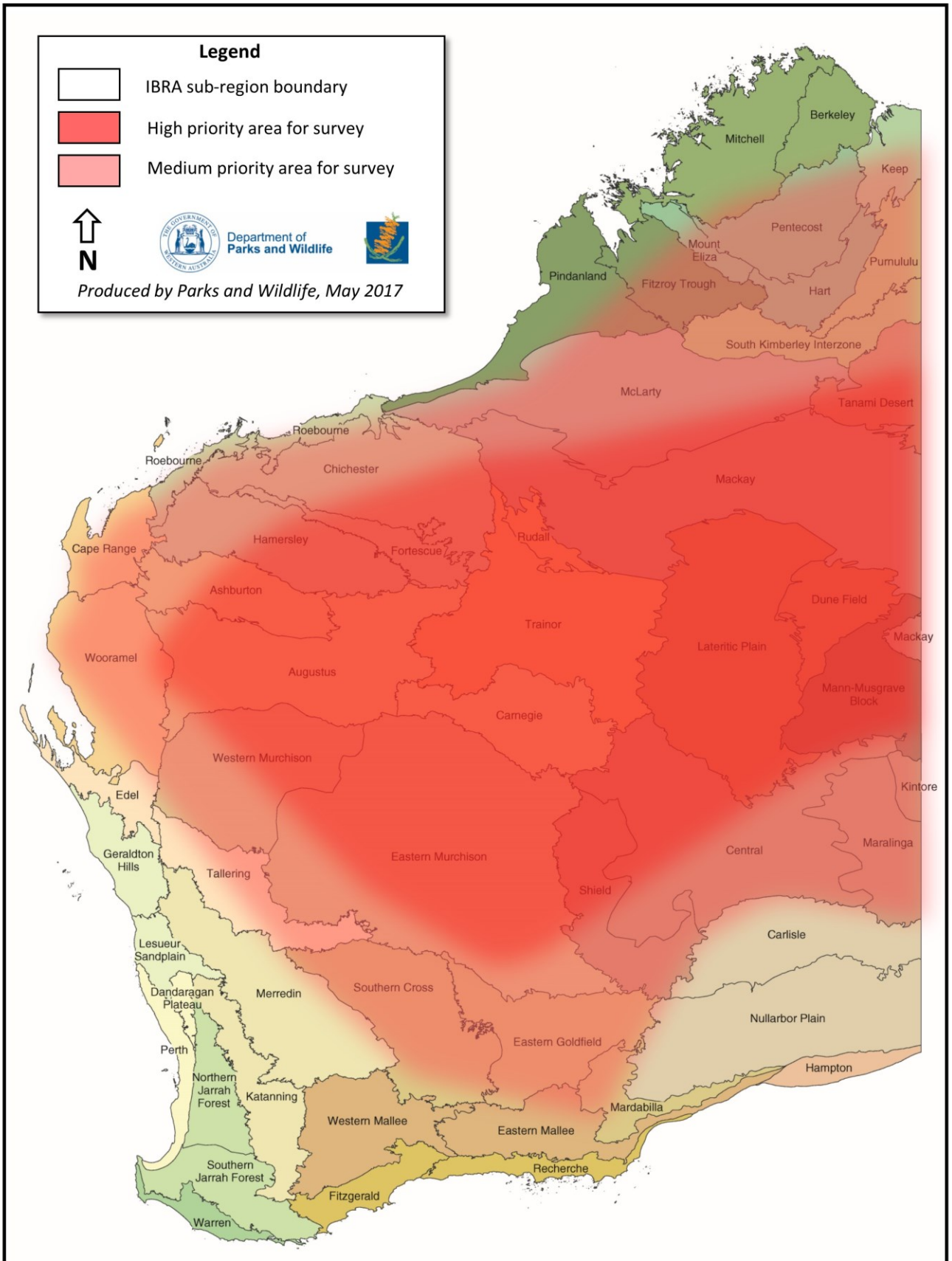

Figure 1: Priority areas for night parrot (*Pezoporus occidentalis*) surveys in Western Australia

Please note: This preliminary map is based on the best available information at the time of publication and may be modified in subsequent versions as new knowledge becomes available.